REMARKS

Claims 1-2, 4-8, 10-12 and 14-15 are all the claims presently pending in this application.

Claims 1 and 6-7 have been amended to more particularly define the claimed invention.

Applicant respectfully submits that entry of the currently amended claims is proper because

the currently amended claims will either place the application in condition for allowance or in better

form for appeal. Applicant further respectfully submits that no new matter is added to the currently

amended claims, nor has the scope of the pending claims changed. Accordingly, no new issues are

raised that necessitate a further search of art. Applicant respectfully traverses the rejections based on

the following discussion.

I.   REJECTION UNDER 35 U.S.C. § 101

Claims 1-2, 4-8, 10-12 and 14-15 have been rejected under 35 U.S.C. §101 as being

directed toward non-statutory subject matter.

The Examiner makes three points on pages 5-6 of the Non-Final Rejection, in

maintaining the 35 U.S.C. § 101 rejection, *i.e.*, "1) any type of data can be vertically partitioned,

2) there is no specific real world practical application, and 3) it is not clear that the "outputting

[of] said combined classification" is output to the real world."

Regarding the first point and the Examiner's suggestion of amending the claim language

to "any other specific data supported by the specification," Applicant has amended independent

claims 1 and 6 to recite "*vertically partitioned medical data*," based on the disclosure of

Applicant's Specification clearly supported, for example, by the medical examples in shown in

Figures 1 and 2. See also the discussion beginning on page 6, line 14 of the specification.

Regarding the Examiner's second point that "is no specific real world practical application" of the claimed invention, Applicant directs the Examiner to Applicant's Specification starting at page 6, line 12, where the "Example" illustrates the claimed invention acting upon exemplary data sets from "diagnostic breast cancer data" and "diabetes incidence data," further illustrated in Figs. 1-2.

Regarding the Examiner's third point that "it is not clear that the "outputting [of] said combined classification" is output to the real world," Figure 3 illustrates such a display as item 390 consistent with the claim amendments made to claims 1 and 6-7. The discussion appearing on page 3, lines 4-25 of the specification demonstrates that classifiers are tested using test patterns and that posterior possibilities are computed. Further, page 7, lines 23-31 state that Figures 1 and 2 illustrate the best, worst and average performance of classifiers of vertically partitioned data. This clearly would be output on the display 390 that is discussed immediately afterward in the Specification beginning on the bottom of page 7 and onward. Therefore, the concept of outputting the combined classification to a display is clearly set forth in the Specification, as claimed in claims 1 and 6-7, "...*outputting said combined classification to a display*...."

Additionally, Applicant's Specification states that one focus of the claimed invention was to address "maki[ing] a classification decision based on the decisions made by the local classifiers," page 1, lines 16-17. Specifically, Applicant's invention is directed toward, "A classification decision...obtained based on the decisions made by the local classifiers, without imposing any master-slave configuration," page 2, lines 26-27. The Specification then gives states, "Two "real-life" data sets are described with accompanying results," (emphasis added), page 6, line 14, that output results "into the real world," as illustrated in Figs. 1 and 2.

Again, the Specification states concerning the inventions "results," "[e]ach estimated posterior is then combined using the product of estimated posteriors. The combination can be obtained by various other methods such as the maximum of the estimated posteriors or sum of the estimated posteriors. The product of the estimated posteriors generally provides better results," (emphasis added), page 7, lines 13-16.

Therefore, one of ordinary skill in the art of decision tree classification would readily understand that the outputting of the combined classification yields the "results" as disclosed in Applicant's Specification "to the real world."

With respect to Applicant's independent claim 7, Applicant respectfully maintains that 35 U.S.C. § 101 fails to require Applicant to limit "data" to any particular type, *e.g.*, "medical data," per the Examiner's suggested amendment on page 5 of the instant Non-Final Office Action. 35 U.S.C. §101 provides: Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title. The Supreme Court has interpreted this statutory range of patentable subject matter to be quite broad. "In choosing such expansive terms as 'manufacture' and 'composition of matter,' modified by the comprehensive 'any,' Congress plainly contemplated that the patent laws would be given wide scope." *Diamond v. Chakrabarty*, 447 U.S. 303, 308 [206 USPQ 193] (1980). "Congress included in patentable subject matter only those things that qualify as 'any ... process, machine, manufacture, or composition of matter, or any ... improvement thereof ....'" *In re Warmerdam*, 33 F.3d 1354, 1358 (Fed. Cir. 1994) (quoting 35 U.S.C. §101). The highly quoted statement in the legislative history of the 1952 Patent Act states that statutory subject matter includes anything under the sun that is made by man.

The Supreme Court has recognized two instances in which a method may qualify as a section 101 process: when the process "either [1] was tied to a particular apparatus or [2] operated to change materials to a 'different state or thing.'" *Cochrane v. Deener*, 94 U.S. 780, 787-788 (1877) ("A process is ... an act, or a series of acts, performed upon the subject matter to be transformed and reduced to a different state or thing"). When a claim containing an abstract idea implements or applies that idea in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (*e.g.*, transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of § 101." *Diamond v. Diehr*, 450 U.S. 175, 192 (1981); see also *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972) ("Transformation and reduction of an article 'to a different state or thing' is the clue to the patentability of a process claim that does not include particular machines."). In the instant application, the claims define "*computer software code means for outputting to a display said combined classification to classify said vertically partitioned data*," which is just such a transformation and reduction of an article to a different state or thing being discussed by the Supreme Court.

Since *Diehr*, the Federal Circuit has reviewed several computer technology cases, and in acknowledgment of the innovations occurring in this technological field, identified a third category of method claims that qualify as a "process." Extrapolating from the Supreme Court's "transformation and reduction of an article" test, the Federal Circuit has held that transformation of intangible subject matter (*i.e.*, data or signals) may also qualify as a § 101 process. See, *e.g.*, *State Street*, 149 F.3d at 1373. Responding to the argument that process claims must recite a "physical transformation," the Federal Circuit in AT&T ruled that "physical transformation" "is not an invariable requirement, but merely one example of how a mathematical algorithm may

bring about a useful application." *AT&T*, 172 F.3d at 1358. Quoting the Supreme Court's

language, "e.g., transforming or reducing an article to a different state or thing" from *Diehr*, the

AT&T court noted the usage of "*e.g.*" "denotes an example, not an exclusive requirement." Id. at

1359. The court in *AT&T* went on to cite the transformation of intangible data signals in the

method claim of *Arrhythmia Research Technology Inc. v. Corazonix Corp.*, 958 F.2d 1053 (Fed.

Cir. 1992), as an example that qualifies as a § 101 "process" in addition to the Supreme Court's

test. See id. at 1359. Accordingly, the Federal Circuit has consistently used its own "data

transformation" test in assessing the eligibility of various machine-implemented claims. In *In re

Alappat*, 33 F3d 1526, 1543 (Fed. Cir. 1994) the Court held that "data, transformed by a

machine" "to produce a smooth waveform display" "constituted a practical application of an

abstract idea." *State Street*, 149 F.3d at 1373. In *Arrhythmia*, the Court held "the transformation

of electrocardiograph signals" "by a machine" "constituted a practical application of an abstract

idea." Id. Likewise, in *State Street*, the Court held that "the transformation of data" "by a

machine" "into a final share price, constitutes a practical application of a mathematical

algorithm." Id. Thus, while *Diehr* involved the transformation of a tangible object - curing

synthetic rubber - the Federal Circuit also regards the transformation of intangible subject matter

to similarly be eligible, so long as data or signals represent some real world activity.

     Here, the claims define "*computer software code means for outputting to a display said

combined classification to classify said vertically partitioned data*" which is just the type of real

world output being proffered by the Supreme Court and Federal Circuit. Thus, the techniques of

the presently claimed invention relate to pattern classification in a distributed environment where

the data sets are vertically partitioned, in which each classifier can observe only a subset of the

attributes in the data, and the classifiers do not share the data sets between themselves for reasons

of privacy and security. More specifically, the claims provide *"computer software code means for*

outputting <u>*to a display*</u> *said combined classification to classify said vertically partitioned data."*

Therefore, because independent claim 7 claims *"computer software code means for*

outputting <u>*to a display*</u> *said combined classification to classify said vertically partitioned data,"*

it is Applicants position that such claims define patentable subject matter under 35 U.S.C. § 101

and their dependent claims similarly define patentable subject matter. In view of this, the

Examiner is respectfully requested to withdraw this rejection and to pass the above application to

issue at the earliest possible time.

II.   FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-2, 4-8, 10-12 and 14-15, all of

the claims presently pending in the application, are patentably distinct over the prior art of record

and are in condition for allowance. The Examiner is respectfully requested to pass the above

application to issue at the earliest possible time. Should the Examiner find the application to be

other than in condition for allowance, the Examiner is requested to contact the undersigned at the

local telephone number listed below to discuss any other changes deemed necessary in a

telephonic or personal interview. The Commissioner is hereby authorized to charge any

deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 09-

0441.

Respectfully Submitted,

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Date: September 18, 2008

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